

# DRAGON USER



*The independent Dragon magazine*

November 1985

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Hands up the scum who wrote that ... withdrew your foul imputations, slash, or, by Jove, well ... er ... we'll PRINT it!

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How many needles do you have to drop to find the exact value of pi? How long does a tale? Can you win Microdeal's new Wizard's Quest?

## Editorial

THERE have been a lot of shutdowns since DU went subscription only in July, and some of them are still shaking. Our special apologies to readers on the tail end of the mailing list, who received their September issues seen after their October ones...

But we have our extra four pages at last, and enough Dragon suppliers have come forward with support this month to put a bit of heart back into our advertising pages. We hope this is how it will go on, although there are bound to be ups and downs.

The news that Watersoft have finally given up hope of producing a follow up to Justaposition is not so heartening, showing as it does just another symptom of the decline in the prosperity of the Dragon world.

We wish Watersoft all the best in their new careers, and Microdeal further success with their new acquisition.

Roll on the Christmas 5500 Show on November 22nd. It's a good excuse to visit the snake and start the Christmas shopping early, as well. Two benefits for the price of one. Don't miss it.

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### How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent, depend on the quality of the documents that you can make with your Dragon. The Dragon computer was designed to be the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, wherever possible, be computer printed on plain white paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program, so please keep a copy if you want to have your program returned; you must include a stamped addressed envelope.

# Letters

This is the chance to air your views — send your tips, compliments and complaints to Letters Page, Dragon User, 13-13 Little Newport Street, London WC2H 7PP.

## Command cure

AFTER entering and running the Core Wimp program I found I had trouble with the SUB command not working properly. I found that this fault could be cured by altering line 50 in the Basic program to:

```
50 PCL:ADDR: POK: 20567: 4:67
```

I hope this helps other readers.  
G. Moulton  
15 Beaufort Road  
Gottmington  
Oxfordshire  
Leam LN15 2AD

## Adventure advice

WE HOPE you have enjoyed using Adventure Writer, and are well on the way to writing your adventures. If you wish to market them you are welcome to do so — all we ask is that you mention our Adventure Writer as being used to produce it.

A couple of points have been drawn to our attention.

1) Apparently, some tapes had the two files following `ADWRUN` in the wrong order. If you find one of these, accept our apologies. To correct the fault, just swap the two `CLADRM` lines in `ADWRUN` after loading. If you still have difficulties, return the tape to us and we will replace it, and your postage.

2) In the Technical Reference Manual, page 5, 'Editor Syntax', the term `DISP` has apparently confused some people. It means 'displacement' from the command label it refers to.

3) Compatible Screen Drivers: Rainbow Writer, by Marcello Jackson, is to be compatible with Adventure Writer, but it has been reported by a user in Northern Ireland that Rainbow Writer is not compatible with DOS. An alternative screen driver which the author believes should be compatible with both Adventure Writer and with DOS, is available from Matthew Lodge of Milmam Main, Holmes Chapel Road, Latch

terine, Northwich, Cheshire CW9 7DZ.

Malcolm Cowan  
Cowan Software  
23 Drake Avenue  
Levenshulme, Manchester M19 2BQ

## Quirks in quiz

THERE were three mistakes in the Countries Quiz program in DU's September edition.

- 1) Line 630 should read `PLAY "LAT58280"`
- 2) A line needs to be added: `END: GOTO 1`
- 3) Asia line 3890 was missed. For clarity, it was: `3890 PUT(X,Y)(T,U)HOR:RET:RM`

This does not apply to anybody who bought the game from me, which is still available at £2.00 from my address.

Justin Healey  
"Clock Soft"  
25 Harmonds Croft  
Church Molesey  
Woking, Surrey  
S27 9AQ

## Disc notes

I HAVE been a regular reader of DU for the past three years and I really appreciate the effort you put into the magazine. Having recently bought a Cernex file drive, I would like to hear from other users of this drive with a view to swapping software — especially how to convert existing cassette programs to disc (I've already converted some).

I have not yet seen any adventures available on disc, so being an adventure fiend, if anyone can 'OBTAIN FUTURE' and 'SEND APPLESTONE' they will be suitably rewarded.

Finally, if anyone knows the cheat codes for Downland, please send them to me — I may help to prevent some domestic crisis!

John Blach  
8 Humberstone Road  
Abingdon, Surrey  
KT8 2Y2

## Swapping with Spain

I WANT to communicate with users or groups of the Dragon computer to swap programs, ideas, magazines, etc. I own many programs although I stopped to get more. I want to swap programs for copies of Dragon User from July onwards. Anyone interested, please write to me at the address below.

Joan Carlos Hernandez Pons  
Gustaf-Dor 32' 3rd  
Sancti  
Hiraya  
Spain

## Printers needed

JUST RECENTLY I bought an Amstrad word processor, which works well, although it's frustrating to be without the excellent Dragon graphics commands.

What I want to do is use some of the Dragon programs I wrote (in Basic, on cassette) on the Amstrad, so what I need is a printer to print them out, so that I can tape them out from hard copy into the PCW. There lies the problem — not one Dragon user in my area has a printer.

I'm appealing to my readers to write to me if they would LISTEN my plea for me, so I've sent them screens. I'll pay the going rate, of course.

Please help me if you can, otherwise I'll have to REJECT my ASCII, which is very painful!

Jim Jenkins  
Lure Hing  
Newport  
Dorsetshire  
SA42 0DZ

## Extra graphics

DUE to some bad typing I have discovered something very interesting. The dragon has four extra graphics pages. These pages are hidden and can not be used for drawing,

but they can be used with PCOPY command. The new pages are number 1 to 30 and are very useful for backup purposes.

```
13 PPOC:SH:OW:W:R:G: USE: OF  
GRAPHICS: PAGES  
20 PCL:ADDR:  
30 PPOC:SH:OW:W:R:G: SCREEN:  
3 PCL:G:  
23 CIRC:U: (25:25): 70  
40 PANT: (25:25)  
45 FOR T=1 TO 4: PPOPY T TO  
T+10: NEXT  
50 PCL:G:  
55 LINE (55:55)-(55:140),  
PSET: BP  
60 FOR T=1 TO 4: PPOPY T TO  
T+4: NEXT T  
80 PCL:G:  
70 CIRC:U: (25:25): 70.2  
80 EXOC: (55:54) WAIT FOR  
KEY  
90 FOR T=1 TO 4: PPOPY T-  
8 TO T: NEXT  
100 FOR T=1 TO 4: PPOPY  
T-4 TO T: NEXT  
120 GOTO 30
```

Please note that this will not work on the DSA, and also I have not the faintest why this works. Also don't use numbers from 0 to 15 or you will lose your program.

Paul Simpson  
11 Moor Close  
Luton, Cambs  
CB9 7AU

## Improved display

IN RESPONSE to several letters complaining about the poor quality display outputs from their computers, I have discovered a quick and effective way of improving the quality of the display.

A small integral board modification is required, which is simple and takes about thirty minutes. I would add that I have thus modified both my machines and have been working happily during the twelve months since the work was carried out. The modification works on TV or monitor, and although the enhanced display is monochrome, the normal nobility colour display can be restored at the flip of a switch.

Details of the modification are available from me for the nominal price of £1.00.

R. C. Crookes  
15 Macaulay Street, Grimsby  
DN1 2JH



# News desk

If you have any new products for the Dragon — software or hardware — ring the News Desk on 01-437 4343

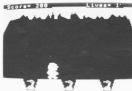


Wizards Quest

## Microdeal in games takeover

At THE same time as Microdeal defy the trend towards fewer games releases by producing three new games for the Dragon comes the shock news that they have taken over Watersoft, whose advents are Jantastation — The Barons of Cok's arguably

development as professional programmers are forced out of the Dragon market. The utility of software houses to sell enough games packages to support good full time programmers to produce new games has also killed off incentive's party-written time



Cutbert and the Golden Chalice

the most popular Dragon game of the last year.

Says Jerry Pope of Microdeal 'We were trying to get hold of them to buy their products from them all this year. Eventually we managed to get hold of them and ended up with a deal to buy out all their rights worldwide.'

The projected follow-up to Jantastation originally planned as a trilogy, a dubious habit acquired from the fantasy book trade will now not be developed, continuing the trend against role games

and where the game's writer was compelled by necessity to get a regular job.

The three new projects from Microdeal are Wizards Quest, where the player collects treasures in a haunted mansion, Cutbert and the Golden Chalice, the latest in the Cutbert series, with twenty scenarios, and Jantastation, their piece de resistance, with 750 locations, five controllable characters and a 3D maze. Cutbert and Wizards Quest are reviewed in this issue. Dragon User.

## Utility on cassette

RAM(COMM) tell us that after developing their Sausage-maker disc utility to copy non-disc Dreams, the whole system has been rationalised onto a single cassette version which covers all versions of Dragon-ED, and the disc version withdrawn. Dragon User will be reviewing this version soon.

Pam O'Leary is now working on DRAGONCASSIN — which she envisages as the start of a Fleet Street Editor/Pagemaker system as available on the BBC; she has no release date for this package as yet.

## FLEX for the PC

FOR various 6809 basins, Compuserve have developed their FLEX809 microprocessor development-compatible computers (which do not include the Dragon, unfortunately). FLEX809 makes PC-compatible into a FLEX-based 6809 development architecture while retaining all the facilities of the PC computer, say Compuserve.

The system costs £495 as 'kit' and delivery. For information or demonstrations contact Compuserve on 01-682 5881.

## Micro group

FURTHER to the subject of the 6809 microprocessor, the 68 Micro Group can be contacted via Joe Johnson at 20 Edwallen Ave., Pittsburgh, Canada. Mr Johnson is the

periodical bulletin. Regular meetings are held in central London, and there seems to be some movement in the Midlands as well.

## Catalogue competition

FOR hardware designers and redesigners, the Winter 1988 catalogue from Cirtin Distribution, the electronic components people, will be available for newsgardeners from Cirtin after 15th October, priced £1.20. Special attention in this edition is a competition to win a £300 Hamlet 20MHz oscilloscope, with other electronics prizes for the winners up.

For information or to order, contact Cirtin at Park Lane, Boreham, Herts SG9 6ND.

## Hewson recruits

HEWSON computer games are looking for new freelance software writers.

'You must have the discipline to estimate time and memory requirements with reasonable accuracy and the determination and skill to work to the realistic, sometimes tight, Hewson's press release. The company will provide technical and business support to talented programmers in developing commercial games in return for a professional level of ability and commitment.'

Hewson are at Hewson House, 506 Milton Trading Estate, Milton, Aylesbury, Bucks HP8 4PX.

## Christmas 6809 show

MICRODEAL'S 6809 Christmas Show takes place on November 22nd at the Royal Horticultural Hall in Westminster, London. The National Dragon Users Group and the THX 68 Users Group will be there, as well as trade exhibitors.

Visitors are advised that 68Microusers, the group's

parking in the Victoria area, although not as bad as central London, can be a trying experience. For those who choose to park further out and come in on the Underground system, or by British Rail, the nearest stations are 'Victoria' (near Islington) or 'Victoria' (St. James' Park Underground), all of which are about ten minutes walk from the Horticultural Hall in 'Victory' Square.

Further information from Microdeal on 01 725 6825.



# Communication

Send in your questions, requests, and plans to Communication, Dragon User, 12-13 Little Newport Street, London WC2.

**Problem:** Has anyone out there got a copy of "Euler Calc" along with the appropriate instructions which they can pass on to me? What I really require is a powerful spreadsheet program which does not run under OS-8.

**Enquirer:** D. Lutz, 9 Elmway Way, Bristol BS5.

**Problem:** I have built Asterix Data Design's Addict, and would be interested to know if anyone out there has also built it, as I have been unable to get it to work properly under software control. If anybody has got it to work please contact me.

**Enquirer:** John Margrave, 34 Canoe Young Road, Wintnash, Leamington Spa, Warwickshire CV31 2DU.

**Problem:** I own a Dragon 32 and I am looking for a detailed memory map. I only own the short one from the additional information section of the manual. I am particularly interested in the addresses of the different functions of the Basic and in the addresses from F400 to FFFF. Could anyone write to me with this information or tell

me how to find it?

I am also looking for a Dragon user in my area, that is Belgium, area code 4xx. If you know one (or are one) please get in touch. **Enquirer:** P. Gervaisbeck, 1 rue Cune, B-4500 Senning, Belgium. **Problem:** I have been exploring the Microsoft Extended Basic and the DragonDOS ROM for some time to find out how the machine code works. I have an editor/Assembler DRAGONBASIC package. To disassemble all this code is a very time-consuming operation, so I wonder if anyone knows where I can get a copy of

the original assembly source code listing for these ROMs?

**Enquirer:** Dier Hazard Nossberg, Grønhaugen, N-2640 Seljord, Norway.

**Problem:** I have been trying to write a routine to autoassemble keys on my Dragon 32. The listing below is my best effort, but it repeats too fast. If I put in a delay, it slows the computer down drastically. Can anyone help? Also, is there a machine code routine to get the text or graphics screen upside-down?

**LDOSSTART**  
**STR \$100**

**RTS**  
**START LDX \$5100**  
**LOOP LDH\$FFFF**  
**STD \$+**  
**CMR\$ CntA**  
**RME LOOP**  
**JMP \$1000**

**Enquirer:** Philip Catterall, 54 Penryn Road, New Pit, Stafford ST17 9EY.

**Problem:** On the Microdeal word processor, how can I define the user definable codes?

**Enquirer:** Daniel Lawrence, 26 Lea Street, Lindley, Huddersfield, West Yorkshire HD 3LS.

## Communication

Stuck for a routine? Need some obscure equipment? Feeling out of it? Fear not — someone, somewhere can help you! Write down your problem on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 12-13 Little Newport Street, London WC2H 7PP. We'll publish it as soon as we can — meanwhile, maybe there's someone you can help this month!

**Problem** .....

**Name** .....

**Address** .....

## S.P. ELECTRONICS

CPIA 80 Dot Matrix Printer, inc.	
Printer Cable .....	£228.00
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Cannon 160 CPS NLO Printer, inc.	
Printer Cable .....	£299.00
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A large range of software available.  
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**S.P. ELECTRONICS**

48 Limby Road, Hucknall, Motts  
(Nottingham NG6 5Y)



Circle

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Following list on the reverse side of this  
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**COMPUTERWARE**

PO Box 34, Stoke-on-Trent, ST4 6UX

## Don't dream of being without it!

**Program:** Sourcemaker  
**Requires:** Any Dream or Aldoroom assembler  
**Supplier:** Panacom Ltd., 21 Wycombe Lane, Watbury Green, High Wycombe, Bucks.  
**Price:** (Inclusive, UK) £70 (inclusive overseas).  
Sourcemaker from Panacom Ltd. is based on such an obvious idea that I'm amazed nobody has thought of it before. Used in conjunction with Gnosensor's Dream range of assemblers it will disassemble machine code from ROM or RAM and produce output in a format suitable for loading in to Dream.

The tape contains the control program Poken and several different versions of Sourcemaker to cover all configurations of the assembler — these are Aldoroom cartridge, Aldoroom tape, Dream tape, Dream/Dreambox tape, Dreambox and a version for owners of DottedDOS systems.

Instructions are included for transferring the software to disc (or, say, DOS).

Operation is simply insert the Dream assembler is first loaded (or plugged in) as normal, then the POKEN Basic program loaded, followed by the Sourcemaker machine code program. This is written in relocatable machine code and so can be loaded anywhere in RAM — its default position is at 3070 in the graphics area.

Running the program produces options to change the default CUEPR setting (usually set at 1000 by the user) and the Dream test table limit. The start address of the code to be converted is then entered and Sourcemaker gets to work. Conversion is carried out at a very high speed and a visual indication of what is going on is given on screen. The pseudo-source code output is stored directly into Dream's test table

until it is full. To get to the pseudo-source code, Dream is then entered as usual (ESC) and Old Test selected.

The source code is as near as possible to the original source code but data will be interpreted as instructions. Sourcemaker obviously cannot determine where the original PCRs etc. were. This makes no difference to the validity of the code — BREAK will assemble the code producing exactly the same machine code as was disassembled.

Unlike some systems which use pseudo labels (eg L\$FFFF for a label at \$FFFF) Sourcemaker uses the program counter and offset for all branches etc., producing source such as BNA "x 10. Comment lines are included in the code, showing for example the ASCII character referred to in a load instruction such as LDA C40 "r".

The program intelligently

tries to decide when it is better to output PCRs rather than a BNA mnemonic to ensure that the assembled code will be exactly the same (byte for byte) as that disassembled. This overcomes the potential problem of Dream's use of Zero Register Offset.

There must be countless uses of this program from modifying files on the Dragon 64 to changing commercial tape software to run on it. It had to make one criticism it is that code is disassembled until Dream's test table is full. This means that you have to enter Dream, mark and delete the code following that which you actually wanted to disassemble. This is a pity, though, but it would have been nice to be able to specify file and address of the code to be converted.

Sourcemaker complements the Dream package superbly and no Dream owner should be without it.

Brian Gudge



## Items for collection

**Program:** Wizard's Quest  
**Supplier:** Microdeal  
**Price:** £50

I SUPPOSE I've nothing to cry about. It's just another hard luck story from a town with no cheer. Her name was Wilma, with an 'r' attached, one for distance and one for evil.

She wasn't good looking, a rather plump girl, with spiky hair and a fascination with egg-laying mammals but, for a while, she was mine. I remember how we sat at a computer in London. Mum, always said not to get mixed up with city girls. First playing *400 Aka* and she came up to me and said she knew of a different place where we could play a more stimulating game.

I followed her to a back street and up a long, dim flight of stairs. Her flat was on the third floor, she said, and she was sharing with a team leader who was on an AA course in Trafalgar Square most of the time. She

led me to the bedroom, to her favourite toy — a Dragon. (Jason spends all his time doing this sort of thing - did.) The screen said 'Wizard's Quest' and 'Press any key'.

"I'll just get the stuff," she said, and came back with a joystick. She broke me gently by letting me fill my life from screen to screen on this game which seemed so familiar, so

like the one I had been playing when we met. She coaxed me, teasing me, letting me fall down the holes I'd volunteered to avoid them. Then, just when I thought it was easy, she took me to The Room, where all the objects were listed that I had collected, with no hints on how to find them, or how to recognise them (the graphics were pretty bad).

Well, to cut a long story short, she led to me, that girl, she said she loved me but she always randomised the positions before my go. I still see her occasionally, when I can take the money when I can afford a fix of Wizard's Quest.

Jason DeBour



## Watch your step

**Program:** Gutherb and the Golden Chalice  
**Supplier:** Microdeal  
**Price:** £50

THIS game would be better titled 'Mario and the Golden Chalice' as the graphics here look very much like an expanded Mario from the Ring.

The game runs in PMODE4 and is closest to *Castle Climb* (Searsy Dragon) games. The idea is simply to go from left to right across the screen avoiding various obstacles thrown in your way by the computer, in your quest for the golden chalice.

The game has lovely

screens of which I appear to have completed about eight for, although according to the instructions, once a pattern is worked out for a screen that screen can easily be repeated ad infinitum, the reality is that once a screen is completed it's quite likely to be clobbered up quite dramatically on every other attempt. At least, that was the case with me. However, the game is addictive, and if I didn't have to keep stopping to write reviews I could quite happily have played it all night.

I can't really rave about it because it's very simple and I

can imagine it getting boring. However, don't let that put you off, because it's a good game and well written, and Microdeal mentioned at the PCW show recently that they're not sure if they'll be supporting the Dragon this time next year, so make the most of this game from a company who have, at least, stopped putting out any rubbish games!

The graphics are very smooth (except for the figure who flickers a bit — surely something could have been done about that), and the sound is unobtrusive and really rather pleasant. A good game, even if a fairly simple one.

Jason DeBour



• • • • **SPECIAL OFFER** • • • •

Q U I C K B E A M   S O F T W A R E

# FIRE FORCE

- Unusually large sprites
- Hi Res colour graphics
- Four channel musical soundtrack by Chris Jolly
- Joystick operation

• Quickbeam Software's hit game Shaolin Master proved a winner with Dragon users. Now Quickbeam and Dragon User are getting together to offer Quickbeam's new game, FIRE FORCE — at a pound off the retail price. The offer is open to Dragon User subscribers only, until 21st November — so hurry.

• FIRE FORCE is Quickbeam's follow-up to the successful Shaolin Master. It has taken three programmers six months to develop the two-stage arcade game, which has up to nine moving sprites on screen at a time. The game opens with you, the leader of the commando Fire Force, faced with squads of enemy troops as you dodge your foes, trees and gateways to search for the prototype MFTC X18 SPIRIT low level attack plane which has been hi-jacked and forced down in a clearing deep in the African forests. If you can reach the plane alive, the second challenge begins: to fly the machine to safety, avoiding obstacles and the enemy's planes, collecting energy packs as you go by swooping close to the ground.

• The manoeuvrable X18 Spirit appears on screen as a large, detailed sprite, but the

enemy strike force are larger and more formidable still, though less nimble. To avoid the planes, and collect the energy packs, you must use the Spirit's low flying capability to the full, but beware of trees, buildings and other perils as you skim the ground.

Your only guide is an altimeter at the left of the screen — you will need all your concentration to survive, while knocking out the enemy and collecting your bonuses.

• The special offer is by post only to Dragon User and closes on 21st November. Applications arriving after that date will not be eligible, so fill in the form on this page (or make a copy of it) and send it, together with your cheque or postal order for £8.95 to Quickbeam Offer, Dragon User, 12/13 Little Newport Street, London WC2H 7PP, making your cheques payable to Soot Press Ltd.

**£1 off!**



Please send me . . . . . copies of FIRE FORCE at the special offer price of £8.95 each. I enclose my total payment of . . . . . payable to Soot Press Ltd.

Name .....

Address .....

Postcode .....

Please allow 28 days for delivery. Offer closes 21st November 1988.

# Using discs

*D Rothery shares his inside knowledge of discs and DOS*

AS THE prices of both drives and discs come down, more people are enjoying the great increase in convenience and flexibility of using them with the Dragon, and at the same time many are cursing the manuals for lack of information. I shall try to tell you what I wish I had known when I started with discs, and also will show you how to use this knowledge by giving you a demonstration utility program which I think you will find useful.

With the demise of Premier micro-systems, Cumana seems to have cornered the market with their controller cartridge and drives — and both are very nicely produced. Cumana call their 'DragonDOS' compatible, but seem a bit about telling you exactly what this means. In fact all the DragonDOS commands work on the Cumana system, so all Basic disc programs should work. Cumana have some extra commands, namely **COOPY** which allows you to copy any files including data files to another disc using only one drive (use DragonDOS **COPI** and you end up with two files on one disc, and **COPI** is 'flopped' which will copy from tape to disc or disc to tape. As you can see these are very useful. Also the **PROTECT** On command which protects files can be abbreviated to **PROTECT** (Don't use this in programs since if you later try to run them on DragonDOS you will get an I/O error).

There are penalties, however Cumana is very busy about filenames — not only will it not accept lower case or symbols such as **!;** but you cannot start the filename with a number. It is also lazy about reading things like directories. Having read the directory track since it takes this information stored in memory each time you read the directory in your program — not very useful when you have inserted a different disc! Also there is no backup directory track (but see later). More serious is the fact that several machine code programs do not work with Cumana, among them the ILM versions of Edit+, Rainbow writer and Quickbeam's Dupdisk.

The solution is to obtain the latest DragonDOS ROM version 4.0 from Componente. This has been produced for Eurodata's disc system and seems to have got rid of all known bugs as well as featuring an outboard system and paging the directory (not a bit of improvement since it is still too fast). The ROM is not expensive and can simply be replaced for the Cumana ROM after removing four screws in the Cumana controller. Be careful to put the ROM in the same wayround as the original. If you are in doubt I am sure Componente should tell you if you returned it with them. However (grrr) you lose the extra commands.

Most beginners have problems with **READ** and **WRITE** since they forget that, unlike tape files, it is imperative to print

separators between each item when writing the file to disc.

Thus: **PWRITE(PS,A,7)B** where **PS** is the file and **A** the variables. Also if you write to the same file twice it adds the second lot of information to the end. So if you want to update a file rather than add to it remember to **FILE**, if first or you will wonder why you get the old lot of information when you read it back. (Microdeal forgot this with their Filemaster filing system.) Remember that if you want to save text with commas already in you can use **FILEAD** instead of **WRITE**. This will read all strings up to a new line mark as one variable. Thus **PWRITE(PS,AS,PWRITE,BS)** will be read in as two separate strings by **FILEAD(PS,AS,BS)**.

Also, don't forget that anything which can be done with the **PRINT** statement can be done also by **PWRITE**, so that **PWRITE(PS,USING "#####")A** is perfectly legal, and can be useful if you want to keep files all the same length, for random access.

## Filename extension

All filenames have an extension, so if you do not specify one the DOS will automatically place **.BAS** after a Basic program name and **.BIN** after a machine code file. However the DOS does not need this extension to identify the type of file, so you are at liberty to use any letters you want. Thus when I was writing a program to save school pupils' name lists to disc and then to save the same name lists with the marks they obtained in a test, I saved the names as **FILENAME.NAM** and the marks as **FILENAME.MAR**. Then I have a routine which collects all the marks for the year and puts them on a spreadsheet. It looks at files ending in **.MAR** automatically, putting them in an array, and ignores those with **.NAM**. As another example, you can save any graphics screens to be used later in, say, an adventure program by first drawing the graphics required then using **SAVE<FILENAME>.HAG<2072.00072072>**. If more than one graphics page is in use then after the **00072072** accordingly. The **HPRG** will then remind you what the file does.

The disc utilities and disc detective in the August 1985 issue of Dragon User are so good that I would recommend all disc users to send for a photocopy [BT — Editor]. However, Pam D'Arcy's doctor is only really useful if you know where to find your programs on the disc. This is all right being able to read and display — even after — each track and sector, but the Dragon does not always save the files as one continuous unit. They may be scattered in several sections. My program should help in this and also does several other nice utilities. I hope also it will demonstrate techniques you can use in other programs.

First however we must understand the

directory track. This starts on track 20, sector 3. (Tracks are numbered from 0 onwards and sector is divided into 10 sectors, starting at sector 1.) Each sector holds 256 bytes of information which can be accessed by typing **CLARESET SPREAD:1,20,5,AS,BS** where **S** is the sector number. The variable **AS** will now contain the first 128 characters in the sector and **BS** the remaining 128 characters. If you do this for sector 3 and then type **PRINT BS** you will no doubt recognise some filenames from your disc. However you will also see some peculiar symbols and if you count up there will be less than 128 characters displayed. This is because some parts of the directory are pure numbers, and the CHR\$ equivalents which are in AS either don't print letters or don't print at all. Indeed, if the number '13' present anywhere your display will have stopped at new line, since **CHR\$(13)** is the instruction to the screen printing routine of the computer to go to this.

If we now type **FOR X = 1 TO 25:PRINT ASC(MID(BAS,X,1));NEXT** we will see a string of 25 numbers which represent the information stored for the first file on the disc. The first number is a 'flag'. This will usually be 0, but will be 2 if the file is protected, 128 if killed (128 in CumanaDOS), 127 if there are no more entries following. The next eight numbers are the ASCII equivalents of the filename. Potentially the filename may be less than eight characters (zeros are used as entries. These do NOT print as spaces, since the ASCII for space is 32). This must be allowed for in your programs — one method is shown in lines 8820-8830 of my program. The next three numbers give the filename extension in a similar way.

The three numbers which follow refer to where the first block of the file is stored on the disc. The first two (call them **A** & **B**) give the logical sector number. This is the total number of sectors, ignoring the state of new tracks, counting from 0 at the beginning of track 0. Thus the LBN 19 is really track 1, sector 3. And BT typed the LBN we calculate **A\*256 + B** (for users who understand why). The remaining number is the number of sectors the block takes. If the program is long enough the next chunk will be stored somewhere in the next three numbers, and so on. (A block length of 0 shows there are no more blocks.) The twenty-fifth number shows how many **BTRES** are used in the first sector, which may of course be only partially filled. This is needed to calculate the length of the program. In rare cases a file may contain directory entries if it is very long, but we are going to ignore this.

Since each directory sector has 256 bytes, this allows ten entries with an unused bytes. I have used the last six bytes of the first and second sectors to give the facility to store a disc title of up to 12 letters. This is accessed at the beginning of my program





[illegible]

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# Curtain up!

Torry and Derek Probyn provide a theatrical opening

TAKE your Dragon to the theatre with a machine code routine to split the screen horizontally, and reveal a hidden scene beneath the curtains and opened by splitting the 'front' screen down the centre, and scrolling it simultaneously left and right to reveal a previously saved screen underneath.

This could be used to hold and display an initial title screen while your program is loading, and then to 'split the curtains' to reveal your second 'hidden' title or game screen.

The routine works by moving the bytes of pages 1 to 4 left and right alternatively from the centre outwards, and replacing them with their equivalent static byte located in the screen beneath, on pages 5 to 8.

The machine code should be loaded first

of all, it is 108 bytes long, and resides near Ramtop at address 32640. The code can be loaded either by the Basic Hex Loader in listing 1, or alternatively, for anyone preferring to use their assembler, by the assembly code in listing 2.

When loading in the basic, it is necessary to reserve all eight graphics pages by use of the CLEAR command. Pages 5 to 8 contain the 'hidden' screen to be revealed last, and pages 1 to 4 contain the first screen to be viewed.

Space is reserved for the machine code by CLEAR 80,32640. This is shown in line 30 of the Hex Loader. Enter 'EXEC 32640' whenever you wish to 'open the curtains'.

Each time the machine code is executed, pages 1 to 4 are swapped to pages 1 to 4. This means that the latter are always con-

tained, so that if you require the original screen again, it must be re-drawn before any further GDBS-32640 command. Pages 5 to 8 however, the 'hidden' screen, will not reside in memory and need not be redrawn.

Because PMODES 0 and 2 use a 16-byte screen width, and the machine code requires a 32 byte width, then your program should use only PMODES 1, 3 or 4.

A demonstration program is shown in listing 3.

In line 30, the machine code is protected and the necessary eight graphics pages are reserved. Lines 90 to 320 contain the draw data for the front screen, pages 1 to 4, and lines 360 to 500 the data for the 'hidden' screen, pages 5 to 8. Line 630 pulls the page to 'Open The Curtains'.

So on with the show!

Listing 1



```
10 'BASIC HEX-LOADER FOR SPLIT 8
GREEN M/C ROUTINE
20 CLEAR100,32640
30 CLS:PRINT"SPILT-SCREEN LOADER"
40 FORX=32640 TO32740
50 READA$
60 CHECKSUM=CHECKSUM+VAL ("5H"+A$)
70 POKEX,VAL ("5H"+A$)
80 NEXT
90 IFCHECKSUM<>7567 THENPRINT"DA
TA ERROR-RECHECK ENTRIES"
100 DATA5,0F,34,04,8E,06,00,31,
94,C1,00,27
110 DATA07,5A,46,01,A7,60,20,F5,
8B,41,35,04
120 DATA34,04,31,A8,20,30,64,10,
8C,1E,00,2C
130 DATA02,20,62,8E,06,1F,31,84,
C1,00,27,09
140 DATA5A,46,1F,A7,64,20,1F,20,
F3,8D,1C,35
150 DATA04,34,04,31,A8,20,30,64,
10,8E,1E,10
160 DATA0C,00,20,60,35,04,C1,00,
27,12,5A,34
170 DATA04,20,A8,34,10,30,60,1B,
00,E6,84,35,10,87,84,39,39
180 'TO SAVE CODE, ENTER C$A$H
"SPILTSCR",32640,32740,32640
```

Listing 2

```
40C1
40C2
40C3
40C4
40C5
7F60 7F60
7F60
7F60 C60F
7F62 3404
7F64 800400
7F67 3164
7F69 C100
7F6B 2707
7F6D 34
7F6E 4601
7F6F 4760
7F72 2075
7F74 8B41
7F76 3504
7F78 3404
7F7A 34820
7F7B 3004
7F7F 040C8000
7F83 2002
7F85 2062
7F87 8B061F
7F8B 3164
7F8C C100
7F8E 2709
7F90 34
7F91 461F
7F93 4764
7F95 301F
7F97 20F2
7F99 8B1C
7F9B 3504
7F9D 3404
```

```
*****
***** SPLIT SCREEN *
***** T & D PROGRAM *
*****
040 32640
PUT 32640
LDR 40
PUSH 0
LDR 40536
LEAF 1
LDSP 80
SEC LDR164
ROR 1,1
STA 1,2
BRA LDSP
CDPY
LDR164 ROR
PUSH 0
PUSH 0
LEAF 32,7
LEAF 7
CDPY 7660
ROR RORCL
BRA LDSP
LDR 81547
LEAF 1,2
CDPY 80
ROR ROR164
ROR
PUSH 0
PUSH 0
```

continued





# Missile attack

*Destroy deadly alien missiles in a game by D King*

MISSILE ATTACK is a version of the arcade game Missile Command. You must protect thirteen cities on the planet surface from destruction by deadly alien missiles. To do this the end of the vapour trail must be caught in one of your explosions. Up to ten explosions can be on screen at one time. If you fail to destroy a missile it will reduce one of your bases or cities to rubble.

Your cities are at the bottom of the screen with your three bases left, right and centre. When you fire using the right joystick button a missile will be fired from one of these bases. The number of missiles in each base is displayed underneath. If all bases have been destroyed you can no longer fire. Your sight is moved with the joystick and will wrap round the left and right side of the screen. The game lasts as long as you have one city remaining (not the base).

The game is written in Basic and

machine code. The machine code being the main game, and features hires colour graphics, ten levels and a hi score table with ten entries. The Basic program sets up the random positions, direction, speed of each missile controls the hi score table and drives the screen display.

The difficulty for each level can be changed by altering the variables in lines 400-499. H1-H3 are the number of your missiles in each base. H4 is the number of alien missiles up to a maximum of forty, and S1-S2 are the speed range for the missiles. The hi score table can be used in any program with little alteration. The variable S4 in line 700 sets the maximum number of entries.

During play you gain ten points for destroying a missile and between levels the number of cities/bases and missed missiles are added to your score. Missiles

are worth 100 points and cities are worth 200 points. You are given an extra city even 10,000 points if needed.

To enter the game start by typing in listing 1. This is the Basic program. Do not run it, but save it to tape and type in the test loader listing 3. Start entering the string of hex digits in listing 2, followed by ENTER, then the checksum. When this is complete it can be saved after the Basic with CSAVE "MISS0000", SAVE "DATA", and SAVE "SUM0000". If you enter this in parts don't forget to use PCLEAR before loading. To play the game load in the Basic program and RUN it; this will load the machine code.

If you don't feel like entering the program I can supply a tape on tape with an alternate version on one side. Send \$2.00 to Desmond King, 98 Farnham Street, Ormeau Road, Belfast BT7 2PA.

## Listing 1

```
1 REM *****MISSILE ATTACK*****
2 REM *****BY DESMOND KING*****
3 REM #2054=INVERT, BORDER
4 REM #2024=ZAP, SOUND
5 REM #2030=INIT LIZE
6 REM #2000=NAME
10 PLEAVE=1:GOSUB700:P=0:G5495,0
20 '*****start point of program**
30 EXEC SH2000:G=0
40 CLS:PRINTSH20,PA
50 PRINTSH20,": SC 1994 DESMOND KING,":GOSUB470
60 PRINTSH100,":ENTER START LEVEL 1-10":INPUT LE:IF LE=99 OR LE=999 THEN SOUND
1,1:EXEC#2024:G=0:G5495,1:G57040
70 CLS:LE=LE+1
80 GOSUB100:LE=LE+1:LE=999:ON LE GOTO 400,510,420,430,440,450,460,470,480,490
90 GOSUB10:SCREEN1,0
100 '*****main game*****
110 EXEC SH2000:G=1:PRINTSH20,PA:PLAY G=PA
120 '*****
130 G=SH2000:GOSUB430:G=1
140 '*****passing time*****
150 H=0
160 G=SH2000:GOSUB200
170 G=SH2000:GOSUB200
180 G=SH2000:GOSUB200
190 GOTO200
200 IF P=0 THEN H=H+PEEK(140+541)+544+PEEK(40+542)
210 RETURN
220 '*****passing cities*****
230 C1=PEEK(41000)
240 CLS:IF C1 THEN PRINTSH20,":YOU HAVE REACHED LEVEL,":LE+1:G=999
250 PRINTSH20,":CITIES":C1:PRINTSH20,":MISSILES":H
260 '*****update score*****
270 S=0:G=SH2000:G=0
280 FOR P=0 TO 99 STEP 544:PRINTSH20,":SCORE":P:EXEC#2024
290 IF P=10000 THEN NEXT:GOTO200
300 'give extra city if needed
310 E=E+540:FOR P=0 TO 540:STEP 540:IF PEEK(P) THEN NEXT:NEXT:GOTO 350
320 FOR P1=0 TO 540:FOR P2=0 TO 540:PRINTSH100,":Score City":PLAY "NO LOST
330 C1=C1+1:G=0
340 '*****
350 T=S:G=0:G=SH2000:GOSUB430
```





2506:	326564443D2EE6435954	=	301	2706:	A7843086205426F03510	=	368
250F:	5456240406100D66CF8E	=	306	2707:	309108112697935848040	=	374
251A:	26508D366C3504660306	=	352	270A:	201008040201CF333333	=	147
2604:	8E2069A36D89427046F84	=	281	27E4:	CF0CF0CF0CF0303F003F	=	486
2605:	6A93040A326C2471F6632	=	230	27EE:	6363F9C3F9C3F9C33030	=	492
2608:	42398601971440466C82	=	381	27F8:	F3033F03F030303F033F	=	345
260D:	81152527390460274987	=	329	2802:	03033F03CF0303030330	=	376
2620:	0004005F35840400E784	=	428	280C:	03033303F3CF0C120404	=	290
2636:	864950E744E14329096F	=	479	2816:	40404040404040404040	=	280
2640:	44350448E84620DA3504	=	32D	2820:	5555F5007FF0710F555	=	750
264A:	4A20756F463939664A281	=	3CF	282A:	555555555750757F7550	=	302C
2654:	04246F105E1F2C860A87	=	287	2834:	57555555081055646464	=	2F4
265E:	11606427286C20D0016	=	369	283F:	AAAAAA655595A6666A	=	52E
2668:	9312276C40C16D00F6C	=	44F	2844:	AAAA0810559565F7F7FE	=	628
2672:	6271002524910F252001	=	20F	2847:	FEFE5556384F68FFBF8F	=	61D
267D:	0E2510C110221836768D	=	261	285C:	081055555555556665944	=	348
2686:	18357664448600326504	=	22F	2866:	555555556546659940C18	=	305
2690:	031026FF014F1F883282	=	306	2870:	55555555555555555555	=	352
269A:	793124004126883390F1C	=	1F1	287A:	5555555555555555555F	=	384
26A4:	0606E22308CE227E5027	=	47E	2884:	7F555555555555555555	=	384
26AE:	611F138C06467E274866	=	343	288E:	5555555555550C185555	=	20C
26B8:	019710CC20088E1D208D	=	385	2898:	55555555555555555555	=	302
26C2:	27A6CE20A36C10306037	=	422	28A2:	5555555555507FFF7F50	=	460
26CC:	ABCE320688E108E7C2748	=	46A	28AC:	55555555555555555555	=	352
26D6:	D605364843952648404	=	57C	28B6:	555555550C1655555555	=	20C
26E0:	0039D60D70053F48404	=	466	28C0:	555555550C5555555555	=	5F1
26EA:	0D393456D0048C345636	=	40A	28CA:	5555D07FFFFFFF7F5055	=	68A
26F4:	30027607880794444447	=	2C7	28D4:	5555555555555575555	=	384
26FE:	090C048D47D704D60938	=	387	28DE:	5555AC18555555555555	=	36C
2708:	66FFD607C06627054454	=	376	28E8:	FF5F07D3055555555550	=	58A
2712:	26FC43D60A3D58454353	=	389	28F2:	FF7FF75FF77FF7FC15555	=	72A
271C:	D00E301F9F0F96069708	=	320	28FC:	555555557575F5F57555	=	36C
2726:	AA03D6A8355849D008EC	=	4FA	2906:	0C1855555555D075F570	=	43C
2730:	864408540C5C308D8843D	=	48A	2910:	70F5055555555555FF77	=	54E
273A:	8820040826E63D0F86FF	=	3F8	291A:	05555570FF3055555555	=	52C
2744:	040526CD35D634644466	=	325	2924:	5057575F5F575570C18	=	2F0
274E:	44564456D31A1F013506	=	27C	2926:	55555550575755555575	=	44A
2758:	0406CE27086C535C007	=	40E	2938:	0575555555557F575555	=	44C
2762:	113A39C5A602AB0C20109	=	462	2942:	5870FF50555555555557	=	43E
276C:	2207A7840A1126F2394F	=	32F	294C:	57555D5755570C185555	=	2C2
2776:	846C1F0A1126E9390602	=	33A	2956:	5555555757555050555755	=	34E
2780:	871134CE239E86C28462	=	581	2960:	55555550555555555555	=	38A
278A:	070970002B13A7806011	=	303	296A:	0550555555555075555D	=	46A
2794:	28F01F131FF21CC018297	=	2EE	2974:	501057594F403948555	=	330
279E:	1C2004A6848D0A90006A	=	30C	297E:	5555555551555555555	=	252
27A8:	1F20E53404D711341048	=	32E	2988:	55555555555555555555	=	07C
27B0:	C0C60530108C27E0C145	=	443	2992:	55555555555555555555	=	55E
27BC:	C605A6D0D1C27028A55	=	342	299C:	55550000000000000000	=	17E

# Listing 3

```

PCLEARS
  CLS INPUT "START ADDRESS" : ST
30 INPUT "END ADDRESS" : EN
40 FORP=ST TO EN STEP 10
50 GOTO 60
60 PRINT HEX$(PI " ");
70 LINEINPUT#6
80 IF LEN G#1 < 20 OR LEN G#1 > 20 THEN 170:80 60:90:170,2
90 A$1:FORF=D0 TO 9
100  VA=VAL ("EH"+HEX$ G#1,A,2)
110  POKP+FO,VA:CK=CK+VA
120  IF F=2, NEXT
130  INPUT "C" : C$="":G#
140  IF VAL (C$)+C#0 < CK THEN 170
150  NEXT
160  END
170  PRINT "error--re-enter"
180  GOTO 170,2
190  60:1060

```





result and the formula displayed under **READY**. Move down to **C8** and enter **10** then down again and enter six dashes. If you hit **BREAK** accidentally, enter **GOTO 90** to continue again. Move down to **C9**, and press **/** to bring up the command menu. Press **C** then **enter** and the column is summed into **C9** and press **/** to bring up the command menu. Press **D** then **1** and the column is summed into **C9** with the appropriate message under the **READY** prompt. Move to **C8** and press **/** then **R** then **A** to save the topology.

Press **shift/ltft arrow** then enter **88** to **the prompt** and then **A**. This should move the display window to **A88** top-left.

Press **/** then **F** then enter **3** then press **C** and the result from **C8** is displayed on the bottom line (line 3). Press **/** and enter **G00** and **10.1** appears in **D88**. Press **/** then **L** then enter **0** and the first line replaces the normal topology. Press **shift/ltft arrow** and **exit** to **back** at **B00**. The topology is now carrying on as per **1** then **N**.

Press **shift/ltft arrow** and **exit** to **back** at **B00**. The topology is now carrying on as per **1** then **N**.

This should give you a little feel for **Analysys** and you can now try such command after pressing **/**. Note that pressing **enter** immediately causes a return to the **READY** prompt or an **INPUT ERROR** message.

## Troubleshooting

Save data regularly. A crash may occur for several reasons such as insufficient disk space. If the program crashes, enter **GOTO 90** and remove or alter your input. Pressing **CLEAR** returns to the **READY** prompt except during saving, loading or updating. You may press **RESET** then enter **CLOSE: GOTO 90** to regain control before actual cassette loading. Sometimes, the **DRAGON** will seem hung but is actually consolidating string data which must not be interrupted, just wait.

The program **PD88** is written itself and the first eight lines must be typed exactly as the

listing. If you **GOTO 400** you can compare the memory locations with the values for **54** to **58** in line **395**. They should all say **87** or you've got it wrong. Without disk delete **57**, **58** and line **6** and **7**. Once the program is run they change. Below line **480** onwards when the values are correct. Save the program before running it. You'll have to type to line **54** and **80** **RETURN** and line **395** to be and before the display works. Add the more lines of **58** to move to any cell. Now enter to line **108** to enable calculations.

You may not want all **COMMAND** options such as those connected with the disk or printer. Initial case substitute **31** as the case to jump to in lines **58** and **15**, as the line to **GOTO 88** to in line **148**. Make sure not to confuse the number **8** with the letter **B**.

Print supply a program on cassette if you can send a money order (not a cheque or postal order) for **88** Australian including airmailing to: L. Pils, 71 Woodville Road, Mooroolbark 3108, Victoria, Australia.

Figure 1

CONSUMER PRICE INDEX SURVEY									
A	B	C	D	E	F	G	H	I	J
0	ITEM	UNIT	QTY	COLES	WOOLLS	SEA	FREEB	7/11	
1	-----	-----	-----	-----	-----	-----	-----	-----	
2	PLUM	KG	2	1.20	1.24	1.30	1.32	1.38	
3	MILK	LITRE	2	1.41	1.41	1.41	1.41	1.38	180
4	BREAD	750GME	1	1.20	1.25	.99	1.36	1.28	
5	SUGAR	KG	2	1.17	1.15	1.28	1.38	1.26	
6	-----	-----	-----	-----	-----	-----	-----	-----	TOTAL
7			TOTAL	5.80	5.83	4.9	5.19	5.2	25.5
8									
9								STORES 3	
10									
11								MEAN 5.1	
12								PREV'S MEAN 4.95	
13									
13	DATE	5/54						PRICE HOWE % 5.83	

Figure 2 (with grid)

### HOME EXTENSION

A	B	C	D	E	F	G	H	I	J
0	ITEM	UNIT	#EACH	QTY	COST				
1	-----	-----	-----	-----	-----				
2	FRAME								
3	-----	-----	-----	-----	-----				
4	3X4	FOOT	3.50	150	525				
5	2X4	FOOT	2.50	200	500				
6	2X6	FOOT	3.50	200	700				
7	NAILS	LB	4.75	5	23.75				
8	-----	-----	-----	-----	-----				
9				TOTAL	1748.7				
10	ROOF								
11	-----	-----	-----	-----	-----				
12	SHEET	EACH	28.00	5	140				
13	CLIPS	25	4.00	2	12				
14	NAILS	LB	5.00	1	5				
15	-----	-----	-----	-----	-----				
16				TOTAL	117				
17									
18			GRAND TOTAL		1865.7				

Figure 2 (without grid)

HOME EXTENSION				
ITEM	UNIT	#EACH	QTY	COST
-----	-----	-----	-----	-----
FRAME				
-----	-----	-----	-----	-----
3X4	FOOT	3.50	150	525
2X4	FOOT	2.50	200	500
2X6	FOOT	3.50	200	700
NAILS	LB	4.75	5	23.75
-----	-----	-----	-----	-----
			TOTAL	1748.7
ROOF				
-----	-----	-----	-----	-----
SHEET	EACH	28.00	5	140
CLIPS	25	4.00	2	12
NAILS	LB	5.00	1	5
-----	-----	-----	-----	-----
			TOTAL	117
GRAND TOTAL				1865.7

```

8 GOTO558 IF L.PLTZ 1904
9 WK(2)=2:RETURN
10 M=VAL(WK(2)):RETURN
11 PRINTY,TAB(1):WK(2):RETURN
12 INPUTY,WK(2):RETURN
13 PRINTGZ,CHR$(15)*C(1)*C(1):T=2:
FORZ=0 TOY+1:IT=T+M:POKE55,ESPOK
ESG,S:PRINTGT,WK(2):STRING$(6+LE
N(WK(2)),H$*"-":NEXT:RETURN
14 FORZ=1099:POKA=ASTOT4:POKE57
A:PRINTGTB,PRONT:WK(X):Z=2+6:NEX
T:NEXT:RETURN
15 FORZ=1099:POKA=ASTOT4:POKE58
A:PRRAGZB,PRRZ,FORZ:WK(X):Z=2+6
NEXT:NEXT:RETURN
16 FORZ=1005:POKEA,K+KIA=A+7:NEXT
:RETURN
17 PRINTBT,RIGHT$(STR$(Z),2)+A+3
:FORZ=1005:POKE53,WK(X):POKE51A
A+7:NEXT:RETURN
18 A=AYB:Z=INT(A):T=INT(A-Z)+Q
,1:IFT=, THENZ=9:Z=2-1:RETURNELS
E:RETURN
19 Z=ASTR$(S):IFS, THENZ=RIGHT$(
Z,LEN(Z)-1)
20 IFT=, THENRETURNELSEPOKE51,T+0
:GOSUB1:RETURN
21 T=INKEY$:IFT= "" THENELSESET=
ASC(T):GOSUB
22 PRINT " no room":GOTO59
23 PRINTTAB, "" :PRITTOGG,1:PLAY
:RETURN
24 PRINT "page "
25 PRINT "row " :IFZ=2:GOSUB22:SV=
VAL
L(Z):IFSV, THENZ=1:RETURNELSESET
L(Z)
26 GOSUB15:PRINT "input error"
27 GOSUB15:GOSUB15:GOTO31
28 GOSUB15:IFT=1:GORT=1:THENRETUR
N
29 IFT= "" ANDZ=8:THENELSESET=GT
HENZ=LEFT$(Z,LEN(Z)-1):ELSESET=
Z+T
30 PRINTTAB:IFLEN(Z)>X THENZ=
20:PLAY:GOSUB1:IFT=8:THENZELS
GORT=1:GANDT=1:THENZELSESET=RETURN
31 PRINT " " :WK(1):FORZ=1:TOY:IFK(X)
=P THENZ=0:Z=1:IT=1:IT=1:TS(2+1
):K(2)=K(2)+1:NEXT:X=P:F=F+1:NEX
T:RETURN
32 NEXT:FORZ=1:TOY:IFK(X)=P THENZ
=0:X=TON+1:L(2)=L(2)+1:M(2)=M(2
)-1:NEXT:X=M+1:NEXT:RETURN
33 NEXT:FORZ=7:TOY:IFK(X)=P THEN
FORZ=X TOY+1:L(2)=L(2)+1:M(2)=M
(2)+1:NEXT:X=Y+1:NEXT:RETURNEL
SENEXT:RETURN
34 PRINT "blank?":GOSUB13:IFT<0:OR
THEN1
35 GOSUB23:Z=R:POKE51,C+0:GOSUB1
29:IFT=,GOSUB58
36 N=32:CLS:GOSUB58:N=1029
37 POKEA+L,ASTPRINTTAB44, ""

```

```

38 FORZ=1:TOY:IFK(Z)=P THENPRINTT
AB(2):Z=P:NEXT:GOTO36:SENEXT
39 FORZ=7:TOY:IFK(Z)=P THENPRINT
"aus from " :CHR$(75):CHR$(L(2)+0
):N=P:NEXT:GOTO36:SENEXT
40 FORK=1:TOY:IFK(X)=P THENPRINT"
au from " :CHR$(94):L(X):C=N:NEX
T:GOTO36:SENEXT
41 PRINTSTRINW(N,M)
42 GOSUB15:Z= "" :PRINT "ready"
43 GOSUB13:IFT=7:ANDC(2) THEN61
44 IFT=6:ANDC(1) THEN62
45 IFT=7:ANDC(1) THEN64
46 IFT=0 ANDC(7) THEN65
47 GOSUB15:IFT=4:7 THEN54
48 IFT=3:GOSUB219:GOTO38
49 IFT=4:3 THEN78
50 IFT=7:3 THEN78 :GOTO219
51 IFT=1:7 THEN87
52 IFT=3:2 ANDT(1) THENPRINT "input
" :1:GOSUB21:IFT=1:2 ANDZ(4) "" T
HENZ=
47 GOTO36
53 "screen
54 Z=,C=H=T=, :IFW(5) THENZ=M:GOS
UB9:K=,ELSEK=0
55 A=1024:Z=K+H:GOSUB9:K=H:FORZ=
0 TOY+1:IT=T+M:GOSUB9:NEXT
56 IFT=0 THENZ=0:Z=0:K=1:GOSUB
9:A=1024:GOSUB9
57 IFT=0:THENRETURNELSE3
58 "command
59 PRINT "command:RIN,PRINT,STORE
,FLIR,CLR,CH,CH,CH,FCOL,CYC,C
,TIME"
60 GOSUB13:PRINTTAB44, "" :GOSUB15
:Z=0
61 GNDSTR("IPISFEBCIOYELN",T):
GOTO119,120,299,140,219,215,27,2
70,284,284,227,229,249,259,252:G
OTO31
62 "love
63 P=P+1:C=C+1:IFC=H+1:THENPOKE+
L,VAL(L+7):GOTO31:ELSEH=1:GOTO3
6:right
64 IFT=0 ANDC=2 THENZ=6
65 P=P+1:C=C+1:IFC=H ANDZ AND
C=H THENH=1:GOTO36:ELSEPOKE+L
,VAL(L+7):GOTO31:left
66 P=P+0:K=K-1:IFL=4:5 THENPOKE+L
,VAL(L+M):GOTO31:ELSEV=V-1:GOTO38
67
68 P=P+0:K=K+1:IFL=3:8:2 THENV=V+1:
GOTO36:ELSEPOKE+L,VAL(L+M):GOTO3
1:left
69 "calc in
70 PRINT "formula:" :IFT=0 THEN14
ELSEZ=91:GOSUB29
71 IFT=1:GORT= "" THEN21
72 N=,TS(6):K(X)=Z=,GOSUB23:IFK
, THEN18
73 GOSUB24:P=P+1
74 GOSUB24:P=P+1
75 T=6:P=24:K(1)=P:GOTO29

```



```

188 Z=9999:FORX=1TOY
189 PARETE2$,FROMZ:L:K:
190 PARETE2$,FROMZ:K:H(X):
191 Z=Z+9:NEXT Z=9999:GOTO6
192 'dload
193 PREAD2$,FROM:L:F
194 PREAD2$,FROM:H:N
195 PREAD2$,FROM:H:Y
196 PREAD2$,FROMH:Z,FORMH:TW(X):
197 PREAD2$,FROMH:Z,H,FORMH:K(X):
198 Z=Z+38:NEXT
199 Z=9999:FORX=1TOY
200 PREAD2$,FROMZ:L:K:
201 PREAD2$,FROMZ:H,K,FORMH:N(X):
202 Z=Z+9:NEXT Z=9999:GOTO7
203 'alline/jump
204 GOSUB17:IFT=37THEN31
205 IFZ=,AND:66THEN10
206 IFZ<9 THENPRINT"FROM a,b,c,
a,b,1,97":GOSUB13:IFT=127HEN31EL
SET=1-0:IFT<10RT>9 THEN19
207 IFZ=, THENR=S:V=S:L=42:H=T:C=
H+1:IF=S+9-C ELSEU=S:I=1
208 GOTO39
209 'fcol
210 IFZ=H THENH:ELSEPRINT"column
is wrong":GOSUB13:IFT=127HEN3
1ELSEIFT<0:GRT:PA:THENH:ELSE=110
GOTO39
211 'cycle/99
212 PRINT"cycle1:"10:GOSUB13:IFT
T=127HEN31ELSEIFT<40GRT:57THEN19
ELSEFORH=1449,T=D+40:PRINT"mai
5":GOTO29
213 'dir
214 PRINT"disk dir?":GOSUB13
215 IFT<999THEN21ELSECL3:DIR
216 GOSUB13:GOTO39
217 'line
218 GOSUB17:IFT=127HEN31
219 S=999999
220 'sum
221 IFN=97THEN14
222 GOSUB16:IFT=127HEN21
223 IFN>R-27HEN19
224 GOSUB24:H=N-1
225 L(N)=S:M(N)=P:GOTO29
226 'sum
227 IFY=9 THEN14
228 IFZ<37THENH:ELSEPRINT"from co
sum":GOSUB13:IFT=127HEN31ELSE
T=1-0:IFT<10RT>C-27HEN19
229 GOSUB24:Y=T+1:H(Y)=P:L(Y)=T:
GOTO29
230 'dcm
231 PRINT"decimals:":GOSUB13
232 T=T+49:IFT<0RT>47HEN19
233 PRINTT:"mail":S=97:GOTO29

```

```

234 'title
235 PRINTP:PRINT"1:123456:GOSU
B23:IFT<127HENP=23:GOTO31ELSE3
1
236 'border
237 CL:8:FORX=33TO44STEP32
238 PRINTX,STRING$(39,175):
239 IFX=33ORX=449THEN395
240 PRINTX=1,STRING$(129,22):
241 NEXT:RETURN
242 'summary
243 PLAYR:GOSUB39
244 PRINT9129,"summary":
245 PRINT9147,"ARROW=CELL MOVE"
246
247 PRINT9176,"S/R ARROW=JUMP HD
VE":
248 PRINT9236,"+=FORMULA":
249 PRINT9236,"/=COMMANDS":
250 PRINT9276,"CLEAR=ABORT":
251 PRINT9324,"S/L ARROW=FIRST C
ELL":
252 PRINT9366,"?=SUMMARY":
253 PRINT9425,"press a key":
254 GOSUB13:PLAYR:RETURN
255 'intro
256 P:CL:AR:1:CL:AR:9999:GOSUB39:
FORX=329,1:3=1:Y=97:S=1:810=122:R=
G:U=9:V=0:Q=4:R=1100000
257 PRINT9172,"analyzer":
258 PRINT9324,"COPYRIGHT CIL.PI
L 1984":IFORX=1TO5:PLAY"TI50=X:
C:O:O:5":NEXT150AND249,1
259 S=PEEK(251425)+PEEK(26)
260 S=S+29:52=S+99:53=S+99:54=S
+54:55=S+155:56=S+149:57=S-222:5
8=S-277
261 GOSUB12:51M=51,5M=5,C=5
1,5M=1,5M=1,5M=1,5M=1,5M=1,
1M=5,2M=1,3M=1,5M=1,5M=1,5M=1
57 L=42:H=1:IF=21:C=21R=,1V=,5GOT
O39

```

END

```

400 ' TEMPORARY LINES
410 S=PEEK(251425)+PEEK(26)
420 FOR=5 TO=399
430 PRINTX-S,PEEK(X)
440 NEXT

```



If you've got a technical question write to Brian Cudge.  
Please do not send a SAE as Brian cannot guarantee to  
answer individual inquiries.

## Dragon Answers

### Line jump

IN ORDER to speed up a Basic program, I wish to replace several IF...THEN lines with a machine code routine. After the machine code has made the comparisons, is there any way to direct the return to Basic to a different line number other than the one which follows the BASIC command?

Derek Probyn  
4 Amberton Street  
Chesham, Bucks  
HP8 3JL

IF YOU use the machine code program listed below, this will allow you to call your routine as follows:

```
60000 code line
Where 'addr' is the address of the routine, and 'line' is the line number to jump to if the machine code test is successful. If it is not, then the program continues as normal.
START JSR 35242 'Saig over comma
```

```
"Insert your code here...
5555 'Check result status
LINE 5555 'Execute GOTO
JSR 35242 'skip line number
END
```

### DOS help

IN THE August edition of Dragon User we published a query from Mr. McCandish about using DeltaDOS ROM routines. I have a copy of the 'DeltaDOS Advanced Programmer's Guide' which gives a lot of help and information about particular BASIC routines and a list of nine sub-disassembled files Delta ROM and gave through it pulling in comments on sections of code.

If you would publish my name and address in your column I would be happy to help anyone with DeltaDOS queries.

Gary Coxhead  
1st The Jewells  
Carnington  
Standard Le-Moyne  
Essex SS17 3JG

OUR thanks to Gary for his offer of help. If you do write to him then please enclose an SAE if you want a reply!



### No RAM

USING THE Altosium assembler (on tape) and attempting to assemble at an ORG of \$C000 results in an error. I assume this is because it is not RAM. Is there any way to assemble directly to those addresses to provide correct source code for EPROMs?

D. P Foster  
64 Kenilworth Road  
Fleet, Hants

YOU ARE correct in assuming the problem is caused by there being no RAM at \$C000. If you run Altosium with RAM fitted here then it will happily assemble direct to this area.

The solution is to use the PLOT assembler directive to place the binary code elsewhere in RAM, while still generating code which is correct to run at \$C000. For example, to store it in the graphics area use:

```
ORG $C000
PUT 3B72
```

### BIN files

I WOULD like to know how to load and save standard binary (.BIN) files to and from disc from machine code. Is there any chance of an article on DragonDOS appearing in Dragon User?

Kevin Peacock  
7 Hill Farm Way  
Southwick, Sussex  
BN1 4GJ

IF YOU want to make your machine code programs compatible with all the versions

of DragonDOS then you should use the standard DOS routines (open/close/read/write file etc.) rather than jump into the ROM in the middle of the SAVE and LOAD basic commands.

All the information you need is contained in 'A Programmer's Guide to DragonDOS' available from Dragonware Software, 20 Grosvenor Road, Bedford, H. Sussex MK42 1BS, for £2.99 including post and packing.

### 'Gapped'

I WOULD like to know what a 'gapped file' is and how I can use it to place machine code being loaded from cassette in to different places in memory.

Paul Dugan  
18 Moorcroft Road  
Sheffield, S10 4SS

WHAT is normally referred to as a 'gapped file' is that produced for ASCII data on the Dragon. All files are made up of blocks of at least 255 bytes long, but unlike Basic and machine code, ASCII files have 'gaps' of about 1/5 seconds between each block to allow the computer to stop and start the tape while reading in the data.

The length of blank tape between the blocks is technically known as the 'inter-block gap'. Binary files normally have a zero length inter-block gap so if used to see how you could use gapped files to load in machine code.

To load code at a different address to that which it was saved from you simply need

to give CLDROM a (2% complement) offset, eg CLDROM "FILE", 1000 will load FILE at 1000 bytes higher than it was saved from.

### Kung-fu

I RECENTLY saw a game called 'Way of the Exploding Fist' on a friend's Spectrum. Is this game available for the Dragon 32 and if so where can I get it?

Peter Cobb  
245 Colston Road  
Sheffield S8

'EXPLODING FIST' is produced by Melbourne House but there is no Dragon version available. A couple of kung-fu games available for the Dragon which are worth considering are 'The Master' from Blaby Games, at 15 and 'Shaolin Master Fist' from Quickstream Software at £3. This is superior to the Spectrum version of 'Fist' in my opinion. Blaby can be contacted at Greenways House, Lutworth Road, Blaby, Leicester and Quickstream at 67 Old Hazzard Road, Braxbourne, Herts.

### Addresses

COULD YOU please tell me how it is possible to find the start/end of addresses of commercial machine code programs so that I can make backup copies of them in tape. I would be very grateful if you could help me with this problem.

Martin Ellis  
67 Cooper Road  
Shaftesbury Heath  
Leicestershire

FOR STANDARD binary tape files the following instructions can be printed after loading the file:

```
START: 407488 LENGTH +1: 128127 ENTRY: 485488
```

Most commercial programs use one form of protection or another so it is fairly simple to find the addresses for them. You shouldn't need to copy commercial tapes, and of course passing a copy on to anyone else is illegal and you could end up losing a very happy life if you do.

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SMITHSON COMPUTING, 24 CORN HILL GREEN, BRANLEY, LEEDS, LS29 6SR. Tel: 0532 855821.

2407

# Expert's Arcade Arena

Write to "The Expert" at Dragon Star  
10-13 Little Newport St., London WC2N 6PP,  
with all your arcade tips and hints.

AND SO once again time eddies its slow way forward (if that's one of the worst mixed metaphors I've ever seen) — **EX!** I confess the moment of when time eddies something totally unexpected. So what will happen at this moment? You ask and scratch your heads. I shall tell you. The date will be the publication date of the next issue of Dragon User, and the event is my Christmas present to you, all, an alphabetical list of millions of pokes (and that means at least twelve or thirteen!) Yes, I put **PERSONALITY GUARANTEE** that the pokes you want is not three days' month, then either it doesn't exist, or I don't think it's any good, or you will be very irritated!

But "What do you have for us this month?" you cry. Well, more merrils. I can point out a lot of good things for you this month. For starters, you may have noticed the map... Yes, Mike Gerrard, this is **MMT**! Here is a justification map, and a very, very good one, by David Lillard, who also writes a sci story. David you may remember was the winner of our mystery picture competition and he won a free subscription, well, the very funny thing is that he sent a cheque for one with his competition entry, the very very funny thing is that he's been receiving two copies, and he very very very funny thing is that he's asked me, the Expert, to do something about it. Well, I'm going to have a jolly good laugh at your expense, that's what I'm going to do. He has a free free free to no no bloody he bloody free free free (ps). Right, that's do. Hopefully the subscription will be processed and they'll sort you out, David. (Stop at a line, preferably enclosing your unwanted July issue, David, and we'll see if we can arrange something. Ex.)

If anyone else has problems of an administrative nature, don't hesitate to send them to someone else. I do the pokes, not the paperwork.

I've had a very interesting letter from The Man Who Couldn't Type (I want you — pretentious pen names can screw you up. They certainly will! I get my hands on you.) who kindly provided a new competition. All you have to do is match the message to the location (they're the messages that come up after you've done 40 on each screen from the list below and you can win a wonderful prize which I haven't thought of yet, but it's sure to be utterly worthless. To help you all I've done the first twenty-one of them, so you only have to match the code message to the location for the rest of them.

## Location Message

Death Valley — A real desert rat!  
Outlaw Alley — Smile while you stay if  
Lost Maverick Mine — Buy low, sell high  
Dodge City Bank — Bandit built bank!  
Dead Man's Pass — Go for it!  
Rise River Crossing — Grab the goods!  
Tombstone Jail — It's good to be free!  
Cattle Grazing — I dub thee — Knight  
Halls of Doom — You made it!  
Black Dungeon — Rise your three year!  
Mystery Maze — You can't escape!  
Underworld Arena — Well done, Gladiator!

Forgotten Ruins — Good show, Ranger!  
Chain Chawms — Crush till destroy!  
Gamma Station — Big old laser!  
Hyperspace — Warp 12 or death!  
Escape to Moonbase — Shuttle docked!  
The Invidious Grid — Beware grid bugs!  
Enterprise — Speak lives!  
Starship Omega — Beam me up!  
Light barriers — Use the force!

So, these the competition. I hope you don't think it's too difficult. Well, there's a little cheat to help you. Follow the instructions:

Press load the game with audio on, wait until the game has loaded **EXCEPT** for the very last block (which is only about a second long, followed where it is to be loaded and mark it with the tape counter), press reset, the machine will apparently cycle-start, type the following pokes in carefully:  
POKE 12623, \$H0E; POKE 12624, \$H0E;  
POKE 12625, \$H0E; POKE 12626, \$H0E;  
POKE 12627, \$H0E; POKE 12628, \$H0E;  
POKE 12629, \$H0E; POKE 12630, \$H0E;  
POKE 12631, \$H0E; POKE 12632, \$H0E;  
POKE 12633, \$H0E; POKE 12634, \$H0E;  
POKE 12635, \$H0E; POKE 12636, \$H0E;  
POKE 12637, \$H0E; POKE 12638, \$H0E;  
POKE 12639, \$H0E; POKE 12640, \$H0E;  
POKE 12641, \$H0E; POKE 12642, \$H0E;  
POKE 12643, \$H0E;  
POKE 12644, \$H0E;

Save the game using **SAVEEM "BAN-GIT"**, **000000**, **00755**, **\$H0808**. From now on the game should be loaded by typing **LOADEM EXED (ENTER)** and when you play your power will be setback up to 100 for every hundred points you score by final selection from this man's funny and interesting letter to his choice of "Music to Zap To" (This month's nomination is **Matthew the Brotherhood** and the deal by **John's Fall** — (No, I've never heard of them either, Ex.)

And now for Rays of Faith. I've not got a copy of this, so if anyone wants it good me one. It's a main puzzle. However, not one to without information, here's the solution, courtesy of Edward Brown who hails from Leicester. Take a juicy Eddie baby!

"A) First you must find line 38. Where it says "BT=02" change it to "BT=00". (Help, is this a solution or a hack? Oh stuff it, who gives a damn anyway.)

B) Whenever you come across a jam button, ignore it.

C) Flag down — Kick or bang door — Go right — Pick up sandal — Go up — Pick up gold — Bang on side — Go left — Go up — Fight monsters — Pick up trumpet — Ignore spade — Go up — Bang on side — Go left — Go down — Go north — (Play) Trumpet — Pick up Chain code — Drop the three heads (No. 2) — Wade across (ignore them) — Leave them — Kill monsters — Kill them (thrown in sandals) — **THE KEY**

Seems pretty easy, sports a bit like an adventure. I'm not too keen to have Mike Gerrard round accusing me of invading in the **Wise Small Hours**. Mike is a big guy, he makes Colin look like **Glow Worm**.

Now then, to the **Rise Eclipse Save-game** (Editor of oh so many months ago, there were some bugs in it according to Matthew Lodge from Cheshire.

Line 408 should read "400IF .AM THEN

## BO ELSE 060"

Line 1480 should read "1400 DATA CARDO HOLD 5, FUEL TANK, 1, 10, MD LASER, 5, HYPERDRIVE, 1, DRILLING RT, 1, ASTEROID DRILL, 1, MELLARD 9"

Also **EXPLORERS** is a spot wrongly in line 1280, and the line number (which should be 10) is missing from the last line. Matthew has also given a couple of suggestions as to who I am, is definitely not "De-beam of the Wapped Mind", not Mike Gerrard, and I am not even a Dragon running some sort of the art AI program (well, that's certainly a bit of a stretch), sorry certainly that's so! I must be as I am most of the rest of the UK (and Lucan!) Terry Wogan. Well, Matt, all I can say is, "Close, but no banana." You don't even get this month's prize, which goes to Christopher Greenbank, who suggests that I might be the "off" of golf on the New Man title screen. Wrong, but very amusing. Chris's points are his name, and all the information he sent me. **IN THIS COLUMN**. And I think you'll be quite interested too...

"Dear Expert, in your informative columns you have mainly included pokes to make games easier to play" — For those lesser mortals who find them hard, Chris, I, for myself, need them all — "Why not include pokes that allow you to customise games?"

"Chuckie Egg by A+E Software was a very good game until the games started lasting four" — only hours? The kid's an amateur! — "because the screens were memorised. Below are details of how the screens are stored so that newcomers can be produced."

## Addresses Contents

3C80 3C81 H and to byte of start screen 1  
3C82 3C83 H and to byte of start screen 2  
3C8E 3C8F H and to byte of start screen 3

"Screen data can be stored between 3C819 and 3C8F7. I have not tried but think it could also be stored after the program which is at 347E.

Each of the eight blocks of screen data is ordered in the sequence shown below:

A) A "header" of five bytes containing:  
1) number of walls in screen 2) number of obstacles in screen 3) X co-ordinates of the 3 initial number of seeds in screen 4) initial number of chicks in screen.

B) The five co-ordinates of the chicks. These are in the order X, Y, and are the normal 256 by 160 with X being to be an even number and Y being a multiple of eight (so that it can walk on a wall).

C) The walls (indicated which are Y, X, of the left corner and the length. The X, Y, Length are entered out on a character grid the screen which numbers from 0 to 31 along the X-axis and 0 to 23 on the Y axis going across and down respectively from the top left hand corner. For the wall co-ordinates there will be three bytes multiplied by the number of walls.

D) The ladder co-ordinates which are X,



Y, of the top left corner, and length, these also use the character positions, and there are three bytes multiplied by the number of ladders.

G) The egg co-ordinates which are X, Y, using the character positions. There are always twelve eggs and therefore 24 bytes

in this section.

F) The seed co-ordinates which are X, Y using the character positions. There are two bytes times the number of seed in the screen.

The map always starts at (12, 32) and (12, 32).

So, there's Chris's Charlie Egg-designer, and that's about it for the month, except to say, keep sending the poles, keep sending the maps, keep sending the screen designers, keep sending the suggestions of who or what I am, keep-sending the flows.



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All the number of Dragon adventures released by the main software houses owes to a trickle, you readers have shown that you're not going to take it lying down and have been increasingly writing your own and sending them to me. I'm happy to look at any I receive, and even review them in the column if I think they're worth it, though some submissions have had to be returned to their authors as not really being up to scratch.

For the benefit of anyone thinking of spending something in, let me tell you what I make by that. It's not that I'm a particularly hard person to please, and I do recognise the amount of hard work and hours of slog that go into the production of any piece of software, especially an adventure — I know because I've done it in some cases! I say that it can't review the adventure because I don't think it will have a wide enough appeal to all the Dragon user readers who take a stroll down the Adventure Trail each month. An adventure set in your own school might be fairly to yourself and your friends, for example, but won't mean much to anyone else, particularly if solving the problems relies on a knowledge of some of your teachers' peculiar habits.

In some cases I may even send one back without spending more than about five minutes looking at it. That happens when I find very obvious bugs in the first few sections, along with lots of spelling mistakes. Send something in that's already and you'll get it back pretty sharpish! I've always got a million and three things to do, and debugging other people's adventures isn't one of them. Send something in that's promising, though, and you'll get what I hope will be constructive criticism.

## First-rate

Reader Rob Mangrove sent me in a two-part adventure called *Persimmon Pie*, and apart from not being too keen on the title I thought it was simply the best adventure I'd ever seen from a reader by far. The screen layout was excellent, the storyline original, problems were intriguing and sensible, response was quick and there were lots of nice touches such as a RECP command, which allowed you to save your position to memory. I'm sure Rob would have had no trouble in writing a software house's adventure when the Dragon series was flourishing, and their still having a go at doing that, but will still keep it as one of the few that will take it on. I'll save a full review for when the game's future is decided and I can tell you where to buy it, but if any software house is keen to get its hands on a first-rate

adventure, contact Rob Mangrove at 24 Canon Young Road, Winkfield, Leamington Spa, Warwickshire, CV30 2DU.

Another regular reader is Lionel Degrise, whose name has appeared before in these pages (see pages), and he's written an adventure partly to amuse himself and a friend of his. It's a story line based loosely around the works of Lewis Carroll, and a good knowledge of those is necessary to enable you to solve the game. The main interest here, though, is in the programming. Again the screen lay-out is very well done, and Lionel has seen to it that every line of the lengthy and atmospheric location descriptions fits exactly into the 32-character screen. They are also done in reverse video, which looks effective, and there are various machine code routines incorporated to read and analyse the input and also protect the program. Lionel isn't putting the adventure up for sale, but anyone who's keen on the programming of adventures is welcome to contact him at 5 rue Henri Martin, 95650 Amélie, France.

By far the most profile of my adventure-writing readers is Michael Edwards, aka Bloomsoft, and I've received no less than three of his titles recently. Thankfully they're always worth looking at, and also worth buying if only £4 from Bloomsoft at 30 Beconhills, Molesey Garden, Hert AL7 1PF. Michael must spend more time writing adventures than he does actually breathing, and I've already mentioned the first two parts of his *Space Trek* series, and now he's come up with *Space Ice* II. This follows the format of the others in allowing you to control four different characters, the co-operation of each will be necessary to solve the adventure as certain objects can only be done by certain characters — well, there's an engineer and a doctor among them, so start to work it out from there.

This time a dimensional gate has been opened, which is more serious than opening a five-bar gate on a field full of cows as it causes the Starship Endeavour to be sucked through into another dimension. How to get back? You're looking for the missing quarter of the Quake key, which will do the trick. The game begins rather boringly in that you have to move all four characters from the first location to another one that is six moves away, picking up a few clues and objects on the way, before blasting off in the shuttlecraft to a place called Mishna, where you come down on a landing pad that is a fraction of an inch above the ground. It's a really good idea to save your position before you begin, in forests and on icy cold mountains. A substance is that there are sudden death routines, and you can't SAVE your position

unless you QUIT first, then re-LOAD the adventure and LOAD your saved game. Michael ought to get rid of these unimproved and unimproved deaths, and also tidy up the endings, and this isn't the best of his three latest titles.

An improvement is the Time Machine Search, in which you've just completed and are testing a Time Machine when there's a loud explosion and you wake up in a different world. The machine has broken up into its four main pieces, and you know you'll have to find them all before you can return. The bad news is that they are all automatically camouflaged so will blend in with the surroundings whenever they happen to have ended up, but the good news is that the watch which you have previously implanted in your wrist will buzz when a piece is nearby.

## Poison mist

The last where you are doesn't at first seem all that different from earth: it's road, a shed, a school, a pub with a barboard and even a gloomy looking barman. But why is there a poison mist when you get through the school fence, and what is this strange old-fashioned machine containing lots of crates with unusual and useful objects? One crate even contains the Ark of the Covenant, but maybe that's just stayed in from another adventurous life. There are some seeds that can be planted to produce a tree just overlooking you to climb up it, while in the school there's an operating spinaker system, a robotic basketball player and a proof with a plug and a trapdoor — the problem is that you climb before you can get to either. In fact the school is overflowing with items: a magnet, acid, knife, plate, shovel, matches, basketball, net, umbrella, tank of water, valve, knives, too many to carry round, and a lot of mopping, and I haven't listed out what else with the barman yet.

And even better is *Desire Machine*, which has original instructions like the others, but also a brief introduction to adventure games for beginners. Once again there's been a narrow space (there would Bloomsoft be without them), and you have a dimly lit laboratory where there is a large machine. From nowhere a face appears, suspended in mid-air, and it asks for your help claiming to have been caught by a devil. Use my dream machine and rescue me, it says, before being replaced by a sinister horned figure which tells you that if you want the professor back then you must return with a salamander, a minotaur, a basilisk and a goblin.

That's the end of this column that makes me



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